

REPORT NUMBER: ITL76158

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ISSUE DATE: 02/12/13

PREPARED FOR: PRECISION ARCHITECTURAL LIGHTING

CATALOG NUMBER: MLR5-1-4-X-LP-120-T5

LUMINAIRE: EXTRUDED 3-PIECE METAL HOUSING WITH WHITE PAINTED GENERAL INTERIOR FINISH AND FABRICATED WHITE PAINTED METAL END CAPS, FORMED WHITE PAINTED METAL REFLECTOR AND SOCKET MOUNTING BRACKETS, EXTRUDED CLEAR MICRO-LINEAR PRISMATIC ACRYLIC LENS. LENS PRISMS DOWN AND PARALLEL WITH LAMP.

LAMP: ONE 28-WATT T-5 SYLVANIA FP28/841/ECO LINEAR FLUORESCENT.

BALLAST: UNIVERSAL B228PUNV-C

MOUNTING: RECESSED

TOTAL REFLECTANCE OF PAINT = 89.1 %

THE 0 DEGREE PLANE IS PARALLEL WITH THE LAMP.

TOTAL INPUT WATTS = 30.9 AT 120.0 VOLTS

LUMEN TO CANDELA RATIO USED = 9.17

REPORT IS BASED ON 2600 LUMENS PER LAMP. \*

CANDELA DISTRIBUTION						FLUX
	0.0	22.5	45.0	67.5	90.0	
0	980	980	980	980	980	
5	977	978	974	970	967	93
15	944	942	932	923	918	262
25	865	855	808	780	758	372
35	733	687	605	551	525	383
45	526	471	377	313	290	306
55	331	292	204	198	217	221
65	187	159	159	227	246	188
75	87	82	148	205	217	152
85	16	36	66	77	76	61
90	0	0	0	0	0	

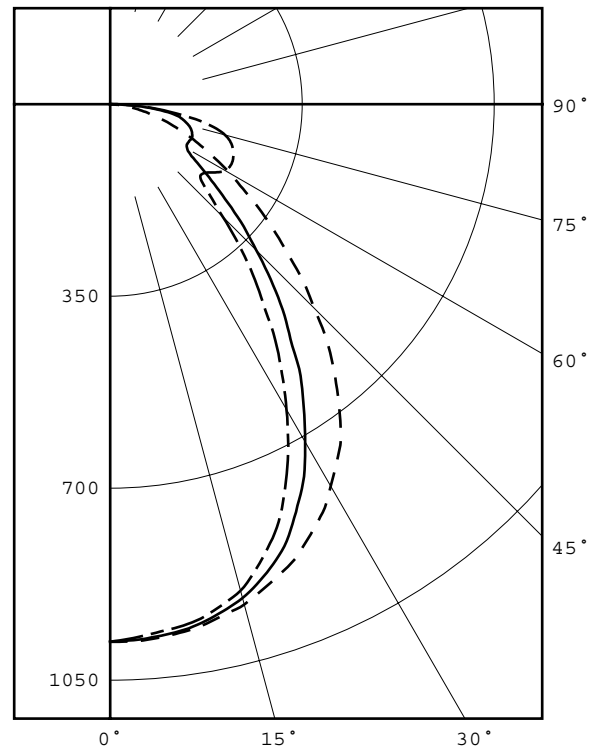
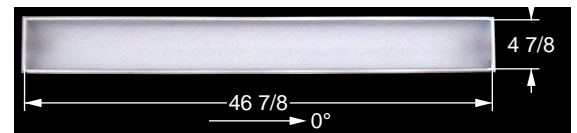
ZONAL LUMEN SUMMARY			
ZONE	LUMENS	%LAMP	%FIXT
0- 30	727	28.0	35.7
0- 40	1110	42.7	54.5
0- 60	1637	62.9	80.3
0- 90	2038	78.4	100.0
90-180	0	0.0	0.0
0-180	2038	78.4	100.0

TOTAL LUMINAIRE EFFICIENCY = 78.4 % \*

CIE TYPE - DIRECT

PLANE : 0-DEG 90-DEG  
SPACING CRITERIA : 1.22 1.04  
SHIELDING ANGLES : 90 90  
LUMINOUS LENGTH : 46.875 4.875

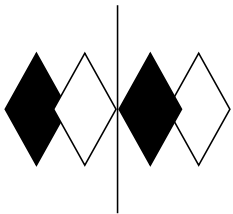
LUMINANCE DATA IN CANDELA/SQ M			
ANGLE IN DEG	AVERAGE 0-DEG	AVERAGE 45-DEG	AVERAGE 90-DEG
45	5046.	3616.	2782.
55	3914.	2412.	2566.
65	3001.	2552.	3948.
75	2280.	3879.	5687.
85	1245.	5136.	5915.



LEGEND:  
0-deg -----  
45-deg =====  
90-deg -----

Checked           M KLOPF          

Approved           R BEATTIE            
Lighting Engineer



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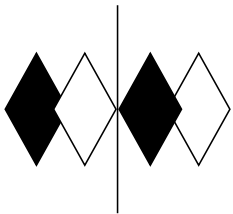
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CANDELA DISTRIBUTION  
 LATERAL ANGLE

	0.0	22.5	45.0	67.5	90.0
0.0	980	980	980	980	980
2.5	980	980	978	975	974
5.0	977	978	974	970	967
7.5	972	972	969	964	961
10.0	965	965	960	955	952
12.5	954	954	947	941	936
15.0	944	942	932	923	918
17.5	927	926	910	898	887
20.0	910	905	884	864	852
22.5	891	882	851	826	811
25.0	865	855	808	780	758
27.5	839	817	765	723	703
30.0	804	781	711	669	643
32.5	770	734	657	607	583
35.0	733	687	605	551	525
37.5	684	635	540	490	458
40.0	635	579	489	427	404
42.5	585	528	433	371	347
45.0	526	471	377	313	290
47.5	477	421	330	267	248
50.0	421	377	281	229	217
52.5	375	330	239	203	210
55.0	331	292	204	198	217
57.5	287	257	176	205	231
60.0	252	220	162	215	242
62.5	217	190	158	223	246
65.0	187	159	159	227	246
67.5	159	131	161	225	243
70.0	132	109	159	221	238
72.5	109	92	155	214	230
75.0	87	82	148	205	217
77.5	66	71	138	186	193
80.0	48	60	126	156	158
82.5	29	48	100	121	114
85.0	16	36	66	77	76
87.5	5	18	29	37	32
90.0	0	0	0	0	0



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5-DEGREE

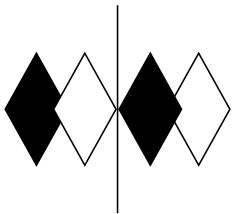
ZONAL LUMEN SUMMARY

0- 5	23
5- 10	69
10- 15	112
15- 20	150
20- 25	178
25- 30	194
30- 35	197
35- 40	187
40- 45	166
45- 50	140
50- 55	117
55- 60	104
60- 65	98
65- 70	91
70- 75	82
75- 80	70
80- 85	46
85- 90	15

10-DEGREE

ZONAL LUMEN SUMMARY

0- 10	93
0- 20	354
0- 30	727
0- 40	1110
0- 50	1416
0- 60	1637
0- 70	1825
0- 80	1977
0- 90	2038



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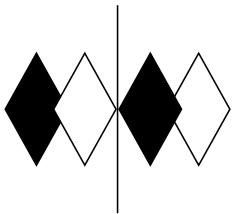
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COEFFICIENTS OF UTILIZATION - ZONAL CAVITY METHOD

EFFECTIVE FLOOR CAVITY REFLECTANCE 0.20

RC	80				70				50			30			10			0
	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	0
0	93	93	93	93	91	91	91	91	87	87	87	83	83	83	80	80	80	78
1	85	82	78	75	83	80	77	74	77	74	72	73	71	70	71	69	68	66
2	78	72	67	62	76	70	66	62	68	64	60	65	62	59	63	60	58	56
3	72	64	58	53	70	63	57	53	60	56	52	58	54	51	56	53	50	48
4	66	57	51	46	65	56	50	46	54	49	45	53	48	44	51	47	44	42
5	62	52	45	40	60	51	45	40	49	44	40	48	43	39	47	42	39	37
6	57	47	41	36	56	47	40	36	45	40	35	44	39	35	43	38	35	33
7	53	43	37	32	52	43	37	32	42	36	32	40	35	32	39	35	32	30
8	50	40	34	29	49	39	33	29	38	33	29	37	32	29	37	32	29	27
9	47	37	31	27	46	36	31	27	36	30	26	35	30	26	34	30	26	25
10	44	34	28	24	43	34	28	24	33	28	24	32	28	24	32	27	24	23

ALL CANDELA, LUMENS, LUMINANCE, COEFFICIENT OF UTILIZATION AND VCP VALUES IN THIS REPORT ARE BASED ON RELATIVE PHOTOMETRY WHICH ASSUMES A BALLAST FACTOR OF 1.000. ANY CALCULATIONS PREPARED FROM THESE DATA SHOULD INCLUDE AN APPROPRIATE BALLAST FACTOR.



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ADDENDUM

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SPECIAL TEST PROCEDURES FOR T-5 LAMPS INCLUDING EXPLANATION OF THE IMPORTANCE OF LAMP LUMEN RATINGS.

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This test was performed using standard relative photometric practices in accordance with recommendations of the Illuminating Engineering Society of North America. Fluorescent testing using the guidelines of relative photometric practice presupposes that the lamps will be operated at their nominal electrical characteristics (e.g., a 40 watt lamp will operate very nearly at 40 watts, and at the voltage and current required for 40-watt operation). Fluorescent lamps in general are temperature sensitive, the lumen output varies with ambient temperature and follows a characteristic curve. The T-5 fluorescent lamps used in this test produce maximum light output in an ambient temperature other than 25 degrees C. A critical step in relative photometric testing involves measurement of the total flux output from the lamp(s) suspended in free air at a 25 degree C ambient temperature per IES LM41-1998. This measurement process is a separate step from the photometric exploration of the luminaire itself. This "bare lamp" measurement is made with the lamp(s) operated by the same ballast(s) which are to be used in the luminaire. Since the test procedure involves measuring the bare lamp flux output at 25 degrees C and this lamp type peaks at a temperature other than 25 degrees C, the flux measured for this lamp type will be less than the maximum output the lamp is designed to produce.

As a result, the measurement of the "bare lamp" total flux output is lower than it would be if the lamps were operated at their optimum operating temperature and at nominal electrical characteristics. When this "bare lamp" measurement is incorporated into the luminaire test report, the net effect is that total luminaire efficiency on the report is higher than what the lighting industry would expect this luminaire to produce. These lighting industry expectations are based on comparisons to the total luminaire efficiency of the same luminaire with T-12 or T-8 lamps.

On this particular test, the lamp lumen rating shown is for a 25 degree C ambient temperature. Since this report was based the lumen lamp lumen rating at 25 degrees C, the candela values in this report should be accurate, as long as the lamp(s) used for this test follow the manufacturer's light output vs. temperature curve.

T5TEMP3.DIS